

INFRASTRUCTURE SERVICES DIVISION  
ENVIRONMENTAL ENGINEERING SECTION

SPECIAL PROVISIONS  
2012 GREEN STREET MEDIAN PROJECT  
WEST GRANGE AVENUE FROM SOUTH 15<sup>TH</sup> PLACE EXT'D TO SOUTH HOWELL AVENUE  
PLAN FILE NOS. 228-89, 229-97, 229-98, 229-99, 229-100, 230-1, 230-2 AND 230-3

SPECIAL PROVISIONS, GENERAL NOTES:

1. THE CONTRACTOR SHOULD INSPECT THE PROJECT SITES PRIOR TO BIDDING. THE CONTRACTOR MAY VIEW THE INTERIORS OF THE STORM INLETS AND CONNECTED DRAINS. APPOINTMENTS SHALL BE MADE BY CONTACTING THE ENVIRONMENTAL ENGINEERING SECTION (EES) AT 414-286-3241, AT LEAST ONE WORKING DAY PRIOR TO THE DESIRED START DATE.
2. STANDARD SPECIAL PROVISIONS, PLAN FILE NUMBER 52-4-51, REVISED DATED AUGUST 22, 2011 OR LATEST REVISION THEREOF IS PART OF THIS CONTRACT.
3. A PRE – CONSTRUCTION MEETING SHALL OCCUR 5 DAYS PRIOR TO THE START OF ANY WORK. PLEASE CONTACT MR. TIM THUR OF THE ENVIRONMENTAL ENGINEERING SECTION (EES) AT (414) 286-2463 TO SCHEDULE FOR THE PRE – CONSTRUCTION MEETING. ALL SUBCONTRACTORS MAY ATTEND.
4. ALL WORK EXCLUDING MAINTENANCE PLAN SHALL BE COMPLETED BY AUGUST 3, 2012. THE MAINTENANCE PLAN PERIOD SHALL BE TWO YEARS FROM THE DATE OF COMPLETION.
5. THERE SHALL BE NO OVERNIGHT STORAGE OF ANY ERODIBLE MATERIALS IN THE RIGHT-OF-WAY. ANY MATERIALS STORED OVERNIGHT WILL BE REMOVED BY CITY OF MILWAUKEE FORCES AND THE COST OF THE WORK SHALL BE CHARGED TO THE CONTRACTOR. ANY DAMAGE OCCURS TO THE LAWN, VEGETATION TREES. ETC SHALL BE RESPONSIBILITY OF THE CONTRACTOR.
6. THE CONTRACTOR SHALL TAKE WHATEVER PRECAUTIONS NECESSARY TO PREVENT DEBRIS FROM ENTERING THE SEWER SYSTEM.
7. SEE SPECIAL PROVISION NO. 52 OF THE STANDARD SPECIAL PROVISIONS FOR EROSION CONTROL REQUIREMENTS.
8. THE CONTRACTOR SHALL CONTACT THE OWNERS/RESIDENTS AND BUSINESSES WITHIN THE PROJECT LIMITS TO INFORM THEM OF THE PROJECT AND PROVIDE THEM WITH ANY INFORMATION DEEMED NECESSARY FOR THE SUCCESSFUL PERFORMANCE OF THE CONTRACT.
9. THE CONTRACTOR SHALL INCLUDE THE COST OF BARRICADING REQUIRED FOR THE ENTIRE PROJECT IN THE BID ITEM “BARRICADING (LUMP SUM)”.
10. ALL MATERIALS AND EQUIPMENT INSTALLED AS PART OF THIS CONTRACT SHALL BE NEW AND FIRST-RATE QUALITY UNLESS OTHERWISE NOTED.
11. THE SOIL EROSION CONTROL PLANS, NON-RURAL AREAS, PLAN FILE NOS. 51-5-62, REVISED DATED MAY 10, 1995, IS PART OF THIS CONTRACT. PRIOR TO PLACING ANY INLET BASKETS, THE CONTRACTOR SHALL REPORT CLOGGED STORM INLET DRAINS TO THE UNDERGROUND OPERATIONS UNIT AT 414-286-3731 SO THAT THEY CAN BE CLEANED.

12. ALL WORK AND MATERIALS SHALL BE IN FULL CONFORMANCE WITH THE LATEST APPLICABLE RULES, REGULATIONS, REQUIREMENTS, AND SPECIFICATIONS OF LOCAL, STATE, AND FEDERAL LAWS, AMERICAN WATER WORKS ASSOCIATION (AWWA), NATIONAL ELECTRICAL CODE (NEC), NATIONAL FIRE PROTECTION ASSOCIATION (NFPA), UNITED STATES OF AMERICA STANDARDS INSTITUTE, NATIONAL BOARD OF FIRE UNDERWRITERS, NATIONAL ELECTRICAL SAFETY CODE, AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI), NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA), AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM), UNDERWRITERS LABORATORIES (UL), OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA), AND CITY OF MILWAUKEE ORDINANCES.
13. THE CONTRACTOR SHALL OBTAIN ALL PERMITS AND PAY ALL FEES REQUIRED BY GOVERNMENTAL AGENCIES HAVING JURISDICTION OVER THE WORK. THE COST OF OBTAINING PERMITS AND PAYING FEES SHALL BE INCLUDED IN THE UNIT PRICE BIDS.
14. THE CONTRACTOR SHALL MAINTAIN ONE (1) 11-FOOT TRAFFIC LANE ON THE PROPER SIDE FOR EACH DIRECTION DURING WORKING HOURS. THE CONTRACTOR SHALL NOT IMPEDE TRAFFIC IN ANY WAY DURING NON-WORKING HOURS.
15. CONTRACTOR SHALL PROTECT AND SUPPORT THE EXISTING WATER MAINS WITHIN THE PROJECT AREA DURING CONSTRUCTION INCLUDING RATHOLING OR TUNNELING UNDERNEATH THE EXISTING WATER MAINS. ALL COSTS ASSOCIATED WITH PROTECTING AND/OR SUPPORTING INCLUDING RATHOLING OR TUNNELING UNDER THESE FACILITIES SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE RESPECTIVE STORM INLET REPLACEMENT
16. IF WATER MAIN IS LOCATED WITHIN THE EXCAVATION LIMITS, THEN, THE CONTRACTOR SHALL INSTALL 2, 8-MIL LAYERS OF POLYETHYLENE BETWEEN THE PROPOSED CONCRETE BASE AND THE PROPOSED INLET EXTENDED ONE FOOT ON THE OTHER SIDE OF THE EXPOSED WATER MAIN.
17. THE CONTRACTOR SHALL CONTACT DIGGERS HOTLINE TO VERIFY THE LOCATIONS OF EXISTING UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL UTILITIES COORDINATION AND VERIFICATIONS BEFORE COMMENCING ANY WORK ON THIS PROJECT.
18. THE CONTRACTOR SHALL SUPPORT ANY STREET LIGHTING CONDUITS AND CABLE CROSSINGS. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO STREET LIGHTING FACILITIES. THE CONTRACTOR SHALL CALL STREET LIGHTING SHOP AT (414)286-3481 TO REPORT ANY DAMAGES. IF THE CONTRACTOR CANNOT WORK AROUND THE STREET LIGHTING FACILITIES IN ANY AREA OF THIS PROJECT, THE CONTRACTOR SHALL CONTACT THE STREET LIGHTING ENGINEER AT (414)286-2174 FOR AN ESTIMATE OF COSTS FOR ALTERATIONS TO STREET LIGHTING FACILITIES.

A 2.5" STREET LIGHTING PVC CABLE SPLIT DUCT SHALL BE INSTALLED BY THE CITY'S STREET LIGHTING SHOP TO COVER AND PROTECT THE STREET LIGHTING CABLES. THE CONTRACTOR SHALL CONTACT THE STREET LIGHTING ENGINEER AT (414)286-2174 OR THE FIELD SUPERVISOR DENNIS MILLER AT (414)286-4251 (72) SEVENTY TWO HOURS IN ADVANCED TO SCHEDULE THE INSTALLATION OF THE SPLIT DUCT. THE SPLIT DUCT SHALL BE INSTALLED PRIOR TO AND UNDER ALL STORM CURB INLETS WITH GRATE TYPE B (BID ITEM NUMBER 44010). ALSO NOTE THAT A 6" DIA. STORM DRAIN IN BIORETENTION FACILITY NO.3 (PLAN FILE 229-98) WILL BE CONSTRUCTED UNDER THE STREET LIGHTING FACILITIES AND THE CONTRACTOR SHALL CONTACT THE STREET LIGHTING ENGINEER OR FIELD SUPERVISOR DENNIS MILLER PRIOR TO INSTALLING THE 6" DIA. STORM DRAIN.

AS SHOWN IN THE SITE PLANS AND ON THE CROSS-SECTION DETAILS, A 4-FEET CLEAR ZONE BETWEEN THE BACK OF THE CURB AND GUTTER AND THE CLOSEST EDGE OF THE

BIORETENTION FACILITY SHALL BE KEPT TO AVOID INTERFERING WITH THE STREET LIGHTNING CABLES.

MAJORITY OF THE PROPOSED LOCATIONS OF THE BIORETENTION FACILITIES ON WEST GRANGE STREET FROM SOUTH HOWELL AVENUE TO SOUTH 15<sup>TH</sup> PLACE, STREET LIGHTING CABLES RUN PARALLEL TO THE CURB. TYPICALLY THE CABLES ARE LOCATED APPROXIMATELY (1) ONE FOOT BEHIND THE BACK OF THE CURB. THE DEPTH OF THE CABLES VARIES BUT IS USUALLY 18" INCHES BELOW THE SURFACE. AT EACH LOCATION THE CONTRACTOR WILL EITHER DIG OR HYDROBORE THE EXISTING GROUND. THE CONTRACTOR SHALL CALL DIGGERS HOTLINE TO IDENTIFY AND PAINT UTILITIES.

19. THE CONTRACTOR SHALL CONTACT FORESTRY ENGINEER AT (414)286-3531 PRIOR TO REMOVING ANY TREES AND PRIOR INSTALLING ANY VEGETATION PLANTING.

THE CONTRACTOR SHALL CONTACT JENE WATERS FROM NEENAH FOUNDRY AT (414) 943-3500 TO OBTAIN ALL NECESSARY CASTING.

20. THE FOLLOWING SPECIAL PROVISIONS REFER TO SPECIFIC BID ITEMS FROM THE PLANS AND SUPPLEMENT AND/OR ALTER THE STANDARD SPECIFICATIONS FOR THIS CONTRACT:

**A. CONCRETE CURB AND GUTTER - BID ITEM NUMBER 50316**

ALL WORK AND MATERIALS NECESSARY TO REPLACE THE EXISTING CURB AND GUTTER INCLUDING ASPHALT SAWING AT THE GUTTER LINE SHALL BE INCLUDED IN THE UNIT PRICE BID THE CONTRACTOR SHALL DETERMINE THE LENGTH OF CURB AND GUTTER REQUIRED TO BE SAWED IN ORDER TO REPLACE EACH STORM INLET WITH GRATE, THE LENGTH OF REPLACED CURB AND GUTTER OUTSIDE THE CONCRETE INLET SHALL BE KEPT TO A MINIMUM AS DETERMINED BY THE METHOD OF OPERATION AND THE WORK REQUIRED; HOWEVER, IN NO CASE SHALL THE REPLACED CURB AND GUTTER EXCEED A 10' DIMENSION. IF AN EXISTING JOINT OR CRACK IS WITHIN TWO FEET OF THE REMOVAL LIMIT, THE REMOVAL SHALL BE TO THE EXISTING JOINT OR CRACK.

THE REPLACED CURB AND GUTTER ELEVATIONS SHALL MATCH THE EXISTING CURB AND GUTTER ELEVATION AT THE SAW LINE. MINIMUM 2 PAVEMENT DOWELS SHALL BE USED ON EACH SIDE OF THE NEW CURB AND GUTTER TO CONNECT TO EXISTING CURB AND GUTTER AT THE SAW LINE.

**B. CONCRETE WALK – BID ITEM NUMBER 50328**

ALL WORK AND MATERIALS NECESSARY TO REPLACE THE EXISTING CONCRETE WALK SHALL BE INCLUDED IN THE UNIT PRICE BID. THE CONTRACTOR SHALL REMOVE AND REPLACE THE FIVE INCH CONCRETE WALK IF NECESSARY.

**C. STORMWATER PLANTER CONCRETE WALL - BID ITEM NUMBER 50346**

ALL WORK AND MATERIALS NECESSARY TO CONSTRUCT THE CONCRETE PLANTERS AS DESIGNED SHALL BE INCLUDED IN THE UNIT PRICE BID.

THE PLANTER WALL SHALL BE CONSTRUCTED 2" HIGHER THAN THE EXISTING SIDEWALK OR LAWN ELEVATION AND SLOPE DOWN TOWARD THE FRONT TO MATCH THE EXISTING CURB ELEVATION. THE PLANTER CONCRETE WALL SHALL BE 24" DEEP AND CONSTRUCTED ACCORDING TO SPECIFICATIONS SHOWN ON PLAN FILE NUMBER 228-89.

**D. 6" DIA. STORM DRAIN CLASS "C" BEDDING – BID ITEM NUMBER 95014**

ALL WORK AND MATERIALS NECESSARY TO INSTALL THE 6" STORM DRAIN SHALL BE INCLUDED IN THE UNIT BID PRICE.

THE CONTRACTOR WILL BE REQUIRED TO HANDLE ALL FLOW DURING CONSTRUCTION AND THE RECONNECTION TO THE SEWER DRAINS. THE COST OF BYPASSING AND PUMPING FLOW AROUND THE PROJECT SHALL BE INCLUDED IN THE UNIT BID PRICE.

THE WORK SHALL INCLUDE BUT NOT LIMITED TO DRAIN DISCONNECTION IF NECESSARY, CORING NEW CONNECTIONS TO EXISTING STORM SEWERS OR EXISTING STORM INLETS, MAKING ALL CONNECTIONS TO NEW AND EXISTING WORK, AND ALL TEES, WYES, FITTINGS NECESSARY TO CONSTRUCT THE OVER FLOW STAND PIPE.

IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE SIZE AND ELEVATION OF THE EXISTING DRAIN CONNECTING TO THE STORM SEWER AND TO NOTIFY THE CONSTRUCTION ENGINEER IF THE DRAIN PIPE CANNOT BE CONSTRUCTED TO PLAN. THE CONTRACTOR SHALL LAY THE STORM DRAINS WITH NO LESS THAN 1/8-INCH PER FOOT OF SLOPE.

**E. WATER SERVICE INSULATION- BID ITEM NUMBER 95017**

ALL WORK AND MATERIALS NECESSARY TO INSTALL THE WATER INSULATION SHALL BE INCLUDED IN THE UNIT PRICE BID. CONTRACTOR SHALL INSULATE WATER SERVICES PER SPEC. 5.11.1 AND SPEC. DRAWING NO. 37 OF THE WATER MAIN INSTALLATION SPECIFICATIONS. SEE DETAILS ON PLAN FILE 228-89. THE INSULATION SHALL BE FIVE (5) FEET IN WIDTH (CENTERED ON THE WATER SERVICE) WITHIN THE EXCAVATION LIMITS.

**F. STORM CURB INLET WITH GRATE TYPE A AND STORM CURB INLET WITH GRATE TYPE B - BID ITEM NUMBERS 44009 AND 44010**

ALL WORK AND MATERIALS NECESSARY TO CONSTRUCT THE STORM CURB INLET WITH GRATE TYPE A (BID ITEM NUMBER **44009**) SHALL BE INCLUDED IN THE UNIT BID PRICE. THE WORK SHALL INCLUDE BUT NOT LIMITED TO SAWING AND REMOVAL OF CURB AND GUTTER, INSTALLATION OF NEW CURB AND GUTTER, SUPPLYING AND INSTALLATION OF NEENAH R-3228 H GRATE WITH FRAME. THE STORM CURB INLET WITH GRATE SHALL BE CONSTRUCTED ACCORDING TO THE DETAILS SHOWN IN PLAN FILE 228-89.

ALL WORK AND MATERIALS NECESSARY TO CONSTRUCT THE STORM CURB INLET WITH GRATE TYPE B (BID ITEM NUMBER **44010**) SHALL BE INCLUDED IN THE UNIT BID PRICE. THE WORK SHALL INCLUDE BUT NOT LIMITED TO SAWING AND REMOVAL OF CURB AND GUTTER, INSTALLATION OF NEW CURB AND GUTTER, SUPPLYING AND INSTALLATION OF NEENAH R-3228 H GRATE WITH FRAME, SUPPLYING AND INSTALLATION OF TWO 4- FEET CONCRETE WALLS EXTENDED FROM THE BACK OF THE CURB AND GUTTER TO THE SLOPED EDGE OF THE BIORETENTION FACILITY TO CREATE A DRAINAGE CHANNEL LEADING INTO THE BED WITH A GRAVEL BED UNDER THE CONCRETE WALL FOR STABILITY. THE BOTTOM OF THE CHANNEL SHALL HAVE SEMI-SUBMERGED 6" COBBLES AND A SLOPE OF AT LEAST 2% TO ALLOW WATER TO FLOW INTO THE BIORETENTION FACILITY. THE STORM CURB INLET WITH GRATE SHALL BE CONSTRUCTED ACCORDING TO THE DETAILS SHOWN IN PLAN FILE 228-89. ALL REQUIRED PVC CABLE SPLIT DUCT SHALL BE IN PLACE **BEFORE** INSTALLING ALL TYPE B CURB INLET SECTIONS AND THE ONE (1) 6" DIA. STORM DRAIN (P.F. 229-98 TO BE CONSTRUCTED UNDER THE STREET LIGHTING FACILITIES), CONTACT THE STREET LIGHTING ENGINEER AT (414)286-2174 FOR SPLIT DUCT INSTALLATION AND REQUIRED LOCATIONS.

THE GRATE SHALL BE NEENAH R-3228 MODIFIED FRAME AND GRATE WITH REMOVED CURB BOX AND EXCESS FRAME PER NF-3228-GT01. ALSO, GRATE IS TO BE LETTERED 'CITY OF

MILWAUKEE THE ELEVATION OF THE PROPOSED GRATE SHALL MATCH EXACTLY THE ELEVATION OF THE REMOVED GUTTER. THE CONTRACTOR SHALL CONTACT JENE WATERS FROM NEENAH FOUNDRY AT (414) 943-3500 TO OBTAIN ALL NECESSARY CASTING.

**G. TREES CLEARING AND TREES GRUBBING - BID ITEM NUMBERS 50012 AND 50013**

ALL WORK AND MATERIALS NECESSARY TO REMOVE AN EXISTING TREE SHALL BE INCLUDED IN THE UNIT BID PRICE. THE WORK SHALL INCLUDE BUT NOT BE LIMITED TO, A COMPLETE REMOVAL OF THE EXISTING TREE AND A COMPLETE CLEANING OF THE AREA FROM ALL REMAINING ROOTS TO A DEPTH TO BE ABLE TO INSTALL THE LANDSCAPED FACILITY. IF TREE PRUNING OR REMOVAL IS REQUIRED BUT IS NOT SHOWN ON THE PLANS, THE CONTRACTOR SHALL CONTACT MR. MIKE MUNSON AT (414) 286-3042, AT LEAST 10 WORKING DAYS PRIOR TO THE START OF THE SEWER CONSTRUCTION WORK SO THAT TREE REMOVAL AND/OR PRUNING WORK CAN BE ARRANGED. ANY TREE ROOTS ENCOUNTERED DURING EXCAVATION ARE TO BE CLEANLY CUT USING HAND TOOLS. DO NOT REMOVE ROOTS USING EXCAVATION EQUIPMENT. ANY EXPOSED TREE ROOTS SHALL BE COVERED WITH MULCH AND WATERED UNTIL RESTORATION OF AFFECTED AREAS.

**H. INFORMATIONAL SIGN - BID ITEM NUMBER 95015**

THE CONTRACTOR SHALL INSTALL ONE INFORMATION SIGN PER EACH FACILITY. THE CONTRACTOR SHALL CONTACT MR. TIM THUR AT (414) 286-2463 TO DETERMINE THE EXACT LOCATION OF EACH SIGN ALL WORK AND MATERIALS NECESSARY TO INSTALL INFORMATIONAL SIGN AS DESIGNED SHALL BE INCLUDED IN THE UNIT PRICE BID. THE INSTALLATION SHALL INCLUDE SUPPLYING ALL NECESSARY MATERIALS INCLUDING STEEL POLE, STEEL BASE, BOLTS AND CONCRETE SLAB AND PLATE COVERED WITH FLEXI GLASS PLATE BOLTED TO THE PLATE USING FOUR ¼" BOLTS AS SHOWN ON PLAN 228-89.

THE SIGN SHALL BE INSTALLED AS SHOWN ON PLAN 228-89. THE SIGN SHALL BE BOLTED TO A 12"X18" CONCRETE BASE. THE CONCRETE BASE SHALL BE 4" MINIMUM IN DEPTH AND TIED TO THE CONCRETE SIDEWALK USING PAVEMENT DOWELS SPACED AT 12".

**I. TREES AND PLAN POTS - BID ITEM NUMBERS 92035 AND 95009**

ALL WORK AND MATERIALS NECESSARY TO INSTALL THE TREES AND PLANT POTS SHALL BE INCLUDED IN THE UNIT BID PRICE. THE WORK SHALL INCLUDE SUPPLYING AND INSTALLING ALL TREES , PLANT POTS, REMOVING EXISTING GRASS AREA IF NECESSARY AND SUPPLYING AND INSTALLING MULCH.

THE CONTRACTOR SHALL INSTALL TREES SPECIES AND BIORETENTION FACILITY PLANTS ACCORDING TO THE LAYOUT SUGGESTED BY THE FORESTRY DEPARTMENT. THE CONTRACTOR SHALL CONTACT MR. SCOTT BARAN AT (414) 286-3531 TO DETERMINE THE LAYOUT OF THE ABOVE PLANTS AND TREES IN THE DESIGNATED BIORETENTION FACILITIES. BIORETENTION FACILITY PLANTS SHALL BE ACCORDING TO THE FOLLOWING:

EACH FACILITY SHALL BE PLANTED PER TYPICAL DESIGNS AND LAYOUTS AND PLANT LISTS INCLUDING MULCHING. THE SELECTED VEGETATION SHALL BE TOLERANT OF THE WET AND DRY SOIL CONDITIONS. ALL PLANTS PLACED AT THE BOTTOM OF THE FACILITY SHALL BE TOLERANT FOR WET CONDITIONS. ALL PLANTS PLACED AT THE SLOPES OF THE FACILITY SHALL BE TOLERANT FOR MOIST CONDITIONS.

IN ADDITION, NO TREES SHALL BE PLANTED UNDER POWER LINES. A 72" MOWING BUFFER SHALL BE KEPT BETWEEN ALL NEWLY PLANTED TREES. ALL TREES, SHRUBS, GRASSES AND PERENNIALS MUST MEET ANSI STANDARDS FOR NURSERY STOCK. ANY EXCESS SOIL

OR SUBSOIL NEEDS TO BE REMOVED FROM THE SITE AND SHALL NOT BE MOUNDED AROUND NEWLY PLANTED TREES.

THE BIORETENTION FACILITIES PLANTS AND TREES SPECIES SHALL BE SELECTED ACCORDING TO THE FOLLOWING TABLES:

BOTANICAL NAME	COMMON NAME	QUANTITY	CALIPER	HEIGHT
<b><u>GRASSES</u></b>				
PANICUM VIRGATUM	SWITCHGRASS	204		1 GAL.
CALAMOGROSTIS ACUTIFLORA	KARL FOERSTER GRASS	120		1 GAL.
MISCANTHUS PURPURESCENS	RED FLAME MAIDEN GRASS	120		1 GAL.
SPOROBOLUS HETEROLEPIS	PRAIRIE DROPSEED	120		1 GAL.
SCHIZACHYRUM SCOPARIUM	LITTLE BLUESTEM	120		1 GAL.
<b><u>SHRUBS</u></b>				
DIERVILLA LONICERA	DWARFBUSHHONEYSUCKLE	70	-	18"-24"
SALIX PURPUREA	ARTIC BLUE WILLOW	70	-	2-3'
CORNUS SERICEA	REDOISER DOGWOOD	70	-	2-3'
PHYSOCARPUS OPULIFOLIUS	DIABLO NINEBARK	70	-	2-3'
ROSA SPECIES	RUGOSA ROSE	70		18"-24"
<b><u>PERENNIALS</u></b>				
EUPATORIUM MACULATUM	JOE PYE WEED	84	-	1 GAL.
ASTER NOVAE-ANGLIAE	NEW ENGLAND ASTER	168	-	1 GAL.
LIATRIS SPICATA	BLAZING STAR	84	-	1 GAL.
RUDBECKIA HIRTA	BLACK EYED SUSAN	120	-	1 GAL.
PEROVSKIA	RUSSIAN SAGE	120	-	1 GAL.
ECHINACEA PURPUREA	PURPLE CONEFLOWER	144	-	1 GAL.
HEMEROCALLIS	DAYLILIES-STELLA D'ORO	120	-	1 GAL.
HEMEROCALLIS	DAYLILIES-PARDON ME	144	-	1 GAL.
LEUCANTHEMUM	BECKY SHASTA DAISY	144	-	1 GAL.
NEPETA	CATMINT	168	-	1 GAL.
ASCLEPSIAS TUBEROSA	BUTTERFLY WEED	120	-	1 GAL.

TREE SPECIES LIST:

BOTANICAL NAME	COMMON NAME	QUANTITY	CALIPER
<b><u>TREES</u></b>			
PYRUS CALLERYANA "CLEVELAND SELECT"	CALLERY PEAR	6	3"
ACER FREEMANII "AUTUMN BLAZE"	AUTUMN BLAZE MAPLE	9	3.5"
PRUNUS VIRGINIANA "CANADA RED"	CANADA RED	6	2.5"

	CHOKECHERRY		
SYRINGA RETICULATA "IVORY SILK"	JAPANESE TREE LILAC	9	2.5"
MALUS SPECIES	CRABAPPLE VARIETIES	6	2.5"

#### **PLANTS MAINTENANCE AND WARRANTY - BID ITEM NUMBER 95016**

CONTRACTOR SHALL PROVIDE TWO FULL YEARS WARRANTY ON ALL INSTALLED PLANTS UNDER BID ITEM NUMBERS 92035 AND 95009.

CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF THE BIORETENTION FACILITIES FROM THE STARTING DATE OF INSTALLATION AND UNTIL TWO FULL YEARS FROM THE DATE OF COMPLETION. THE DATE OF COMPLETION SHALL BE DEFINED AS THE DATE WHEN ALL REQUIRED PLANTS INCLUDING THE GRASS TURF AREAS, ARE INSTALLED. THE CONTRACTOR SHALL SUBMIT TO THE (EES) A WRITTEN NOTIFICATION AS OF THAT DATE. THE ESTIMATED COST OF THE PLANTS MAINTENANCE AND WARRANTY IS \$20,000. THE CONTRACTOR SHALL USE THIS ESTIMATED COST FOR THIS BID ITEM. HOWEVER, THE CONTRACTOR SHALL BE PAID FOR THE ACTUAL COST OF HOURS WORKED (SEE NO. 11 BELOW). (IN ADDITION, THE CONTRACTOR SHALL CONTACT THE EES PRIOR TO PERFORMING ANY MAINTENANCE ACTIVITIES TO THE PLANTS AND TREES. ANY WORK PERFORMED WITHOUT PRIOR AUTHORIZATION OF THE EES SHALL NOT BE PAID). IN ADDITION, THE CONTRACTOR SHALL PROVIDE TO THE EES IN A MONTHLY BASIS A DETAILED REPORT OF ALL BIORETENTION FACILITY MAINTENANCE WORK ACTIVITIES.

THE MAINTENANCE OF THE BIORETENTION FACILITIES SHALL BE ACCORDING TO THE FOLLOWING SCHEDULE:

1. APPLY PRE- EMERGENT TO THE PLANTING BED DURING INSTALLATION
2. ADD TWO TO FOUR INCHES OF ORGANIC MULCH TO THE ENTIRE NEWLY PLANTED RAIN GARDEN. DO NOT COVER THE CROWNS OF THE PERENNIALS. REPLENISH MULCH IN THE FALL AS NEEDED.
3. AVOID FINE CUT OR LIGHTER WEIGHT MULCHES AS THEY TEND TO FLOAT IN WET CONDITIONS.
4. PRUNE ANY DEAD, DISEASED, OR DAMAGED PLANTS AS SOON AS THE PROBLEM IS NOTICED. PRUNE THE FOLIAGE OF PERENNIALS WHEN THEY DIE BACK FOR THE WINTER AND ORNAMENTAL GRASSES BEFORE NEW GROWTH BEGINS IN THE SPRING.
5. REMOVE OR SPOT TREAT WEEDS AS NECESSARY.
6. WATER THE GARDEN DURING ITS ESTABLISHMENT AND EXTENDED DRY PERIODS. ONE INCH OF WATER PER WEEK IS RECOMMENDED.
7. FERTILIZER AND WEED CONTROL APPLICATION IN EARLY SPRING AND LATE SUMMER
8. REMOVE TRASH AND LEAVES FROM BEDS ONCE PER WEEK STARTING THE DATE OF INSTALLATION AND FOR THE ENTIRE TWO YEAR PERIOD FROM THE DATE OF COMPLETION.
9. CLEAN OVERFLOW STRUCTURE. IT IS THE CONTRACTOR RESPONSIBILITY TO ENSURE THAT THE OVER FLOW STRUCTURES ARE ALWAYS UNCLOGGED.
10. THE CONTRACTOR SHALL SUBMIT TO THE CITY A MAINTENANCE SCHEDULE IN A "CHECK LIST" FORMAT COVERING THE ABOVE NINE MAINTENANCE ITEMS. THE SUBMITTAL SHALL BE ON A WEEKLY BASIS VIA EMAIL TO [TIMOTHY.THUR@MILWAUKEE.GOV](mailto:TIMOTHY.THUR@MILWAUKEE.GOV). THE MAINTENANCE SCHEDULE SHALL BE CONSIDERED ACCEPTABLE WHEN A REPLY TO THE WEEKLY EMAIL IS SENT TO THE CONTRACTOR BY THE CITY.

11. THE CONTRACTOR SHALL SUBMIT MONTHLY INVOICES TO THE (EES) FOR ACTUAL WORK PERFORMED PER ITEM NO. 10 ABOVE.

**J. 4" PERFORATED PIPES - BID ITEM NUMBER 70041**

ALL WORK AND MATERIALS NECESSARY TO INSTALL THE PERFORATED PIPES IN THE BIORETENTION FACILITIES SHALL BE INCLUDED IN THE UNIT BID PRICE. THE WORK SHALL INCLUDE BUT NOT BE LIMITED TO INSTALLATION OF 4" PERFORATED PIPES, CONNECTIONS TO THE 8" STORM DRAIN AND OR TO INLETS, END CAPS ON ALL END PIECES, AND ALL TEES, WYES, FITTINGS NECESSARY.

THE PIPE SHOULD HAVE 3/8-INCH PERFORATIONS, SPACED AT 6-INCH CENTERS, WITH A MINIMUM OF 4 HOLES PER ROW.

ALL PERFORATED PIPES SHALL BE PLACED AT LEAST 3.5' FROM THE BACK WALL OF THE CURB AND 1' MINIMUM FROM THE STREET LIGHTING CABLES AND SPACED EVENLY. PERFORATED PIPES LENGTHS SHALL EXTEND TO A DISTANCE 2' MINIMUM FROM THE EDGES OF THE FACILITY. THE PROTECTION OF THE PERFORATED PIPE SHALL BE ACCORDING TO WISCONSIN DNR TECHNICAL STANDARDS CODE 1004.

**K. HDPE POND LINER - BID ITEM NUMBER 92032**

ALL WORK AND MATERIALS NECESSARY TO INSTALL THE HDPE LINER AS DESIGNED SHALL BE INCLUDED IN THE UNIT PRICE BID.

A MINIMUM OF 40 MIL IN THICKNESS HDPE LINER SHALL BE INSTALLED PER PLANS TO SEPARATE THE BOTTOM OF THE STORMWATER BIORETENTION FACILITY FROM EXISTING SANITARY LATERALS AND WATER MAINS (AS REQUIRED IN THE PLANS). THE LINER SHALL BE EXTENDED A MINIMUM OF 5 FEET BOTH SIDES AND PLACED IMMEDIATELY BELOW THE CRUSHED STONE LAYER. AN ENTIRE BIORETENTION FACILITY BOTTOM MAY BE HDPE LINED IF A LARGE WATER MAIN IS PRESENT.

**L. ENGINEERED SOIL - BID ITEM NUMBER 91056**

ALL ENGINEERED SOIL SHALL EXTEND AT A SLOPE 5:1 FROM THE SPECIFIED ELEVATION TO THE BACK OF THE CURB KEEPING A MINIMUM OF 18" COVER FOR THE STREET LIGHTING CABLES AND EXTENDING A HORIZONTAL DISTANCE OF 5 FEET MINIMUM FROM THE BACK OF THE CURB.

THE ENGINEERED SOIL SHALL INCLUDE THE REMOVAL OF EXISTING VEGETATION, NATIVE SOIL AND PROVIDING ALL LABOR, EQUIPMENT, AND MATERIALS TO SUPPLY, MIX, AND INSTALL THE ENGINEERED SOIL, WHICH INCLUDES SAND, COMPOST AND TOPSOIL. ENGINEERED SOIL SHALL BE UNDERLINED BY FILTER FABRIC EXTENDED 6" MINIMUM. PAYMENT FOR THIS LINE ITEM SHALL BE ON A PER CUBIC YARD BASIS. MEASUREMENT WILL BE MADE BASED ON IN PLACE QUANTITIES AS MEASURED BY THE ENGINEER.

THE CONTRACTOR SHALL PROVIDE AT LEAST ONE PERSON WHO SHALL BE PRESENT AT ALL TIMES DURING THE PREPARATION AND PLACEMENT OF THE ENGINEERED SOIL, WHO SHALL BE THOROUGHLY FAMILIAR WITH THE TYPE AND OPERATION OF EQUIPMENT BEING USED. SAID PERSON SHALL DIRECT ALL WORK PERFORMED UNDER THIS SECTION.

PRIOR TO DELIVERY OF ANY MATERIALS TO THE SITE, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER A COMPLETE LIST OF ALL MATERIALS AND INCLUDING SEEDS TO BE USED



DURING EACH OF THE DIFFERENT PORTIONS OF THE WORK. INCLUDE COMPLETE DATA ON SOURCE, QUANTITY AND QUALITY. THIS SUBMITTAL SHALL IN NO WAY BE CONSTRUED AS PERMITTING SUBSTITUTION FOR SPECIFIC ITEMS DESCRIBED ON THE PLAN SET OR IN THESE SPECIFICATIONS UNLESS APPROVED IN WRITING BY THE OWNER.

THE SOIL MIXTURE SHALL CONSIST OF A MIXTURE OF SILICA SAND, TOPSOIL AND COMPOST. THE MIX SHALL BE DESIGNED TO APPROXIMATE THE FOLLOWING PERCENTAGES BY VOLUME.

ENGINEERED SOIL COMPONENT	PERCENTAGE COMPOSITION (BY VOLUME)
SILICA SAND	50
TOPSOIL (SANDY LOAM OR LOAMY SAND)	25
COMPOST	25

COMPOST FOR BIORETENTION FACILITY BASIN -THE COMPOST SHALL MEET THE REQUIREMENTS OF THE WISCONSIN DEPARTMENT OF NATURAL RESOURCES' (WDNR) TECHNICAL STANDARD 1004, BIORETENTION FACILITY FOR INFILTRATION AND WDNR SPECIFICATION S100, COMPOST.

TEST SAMPLES SHALL BE PROVIDED UPON REQUEST TO THE CITY AND AT A RATE DESIGNATED BY THE ENGINEER. TESTING WILL BE IN ACCORDANCE WITH THE METHODS PRESCRIBED IN ASTM D 2974 AND ASTM D2976.

SAND FOR BIORETENTION FACILITY BASIN – THE SAND SHALL BE USDA COURSE SAND (0.02 TO 0.04 INCH DIAMETER), PRE-WASHED TO REMOVE CLAY AND SILT PARTICLES, AND WELL-DRAINED OR DRIED PRIOR TO MIXING. CALCIUM CARBONATED, DOLOMITIC SAND, AND OTHER SUBSTITUTIONS ARE NOT ALLOWED. SAND SHALL MEET ASTM C-33.

TOPSOIL MATERIAL – ALL REQUIRED TOPSOIL MATERIAL SHALL MEET THE FOLLOWING CRITERIA: USDA CLASSIFIED SANDY LOAM OR LOAMY SAND TEXTURE. THE CONTRACTOR SHALL FURNISH THE TOPSOIL FROM LOCAL SOURCES OR FROM AREAS HAVING SIMILAR SOIL CHARACTERISTICS TO THAT FOUND AT PROJECT SITE AND APPROVED BY THE ENGINEER AND SHALL BE FROM NATURALLY, WELL-DRAINED SITES WHERE TOPSOIL OCCURS IN A DEPTH OF NOT LESS THAN 4 INCHES; DO NOT OBTAIN FROM BOGS OR MARSHES. THE AREA SHOULD HAVE BEEN TREATED FOR WEEDS FOR AT LEAST ONE YEAR OR TOPSOIL SHALL BE FREE OF PLANTS OR PLANT PARTS SUCH AS BERMUDA GRASS, QUACK GRASS, JOHNSON GRASS, MUGWORT, POISON IVY, CANADA THISTLE AND REASONABLY FREE OF WOOD AND OTHER EXTRANEIOUS MATTER. THE TOPSOIL TEXTURAL CLASS SHALL BE APPROVED BY THE OWNER.

THE ENGINEERED SOIL MIXTURE SHALL HAVE A PH BETWEEN 5.5 AND 6.5 AND HAVE ADEQUATE NUTRIENT CONTENT TO MEET PLANT GROWTH REQUIREMENT.

THE CONTRACTOR SHALL FOLLOW THE FOLLOWING METHOD FOR THE PLACEMENT OF THE OF THE ENGINEERED SOIL MIX:

1. AFTER UNDERDRAIN PIPE, STONE, AND FILTER FABRIC ARE INSTALLED, PLACE 6-INCHES OF SAND. ON TOP OF SAND, ALTERNATE LIFTS OF COMPOST AND SAND TO ACHIEVE A SPECIFIC VOLUMETRIC RATIO OF THE COMPOST AND SAND. LIFTS SHALL NOT EXCEED 12-INCHES IN DEPTH.
2. AFTER EACH 12-INCH LIFT OF COMPOST AND SAND PLACEMENT, THE CONTRACTOR SHALL UTILIZE A SUB SOILING TECHNIQUE, WHICH DRAGS TEETH, KNIFE OR ROLLERS THROUGH SOIL, BREAKING UP THE COMPACTED STRUCTURE BUT WOULD NOT LEAVE DISTURBED SOIL WHICH WOULD ENCOURAGE WEEDS.

3. ANY IRREGULARITIES OR UNDULATIONS RESULTING FROM TILLING OR GRADING SHALL BE FINE GRADED AND LEVELED PRIOR TO SEEDING. HEAVY EQUIPMENT WILL NOT BE ALLOWED IN THE BIORETENTION FACILITY BASIN ONCE PLACEMENT OF THE COMPOST AND SAND MIX HAS BEGUN. ONLY LOW-PRESSURE, CONSTRUCTION EQUIPMENT IS ALLOWED. THERE SHALL BE NO COMPACTION OF THE COMPOST AND SAND SOIL MIX, ASIDE FROM THOSE RESULTS FROM THE PLACEMENT AND NATURAL SETTLEMENT OF THE SOIL. DRIVING IN BIORETENTION FACILITY BASIN IS NOT ALLOWED, EXCEPT BY LOW GROUND PRESSURE EQUIPMENT NECESSARY FOR THE PLACEMENT OF THE ENGINEERED SOIL.
4. AFTER SAND AND COMPOST MIX IS COMPLETED, SUFFICIENT TOPSOIL SHALL BE PLACED ON TOP OF THE SOIL TO ACHIEVE THE REQUIRED 30% VOLUMETRIC RATIO. SOIL MIX SHALL BE FREE OF STONES, LUMPS, PLANTS, ROOTS AND OTHER DEBRIS OVER 2" IN ANY DIMENSION.

**M. 2 ½" CRUSHED STONE - BID ITEM NUMBER 91153**

ALL WORK AND MATERIALS NECESSARY TO INSTALL THE CRUSHED STONE IN THE BIORETENTION FACILITY AS DESIGNED SHALL BE INCLUDED IN THE UNIT PRICE BID.

THE CRUSHED STONE SHALL BE 2 ½" OPEN GRADED CRUSHED WASHED STONE WITH A POROSITY OF 40%. THE TOP OF THE LAYER SHALL BE COVERED BY FILTER FABRIC EXTENDED 6" MINIMUM ON EACH SIDE AND TO THE VERTICAL LINER EDGE.

**N. GRANITE COBBLES - BID ITEM NUMBER 50043**

A MINIMUM OF 4' X 4' OF 6" GRANITE COBBLES SHALL BE INSTALLED IN EACH BIORETENTION FACILITY. THE CONTRACTOR SHALL USE 6" GRANITE COBBLES PARTIALLY SUBMERGED WHICH ARE VISUALLY APPEALING WITH MORE THAN ONE COLOR.

**O. FILTER FABRIC- BID ITEM NUMBER 92021**

FILTER FABRIC SHALL BE NORTH AMERICAN GREEN 130EX NON-WOVEN, NEEDLE-PUNCH FILTER FABRIC OR EQUIVALENT.

**P. 8" PVC STAND PIPE WITH GRATE - BID ITEM NUMBER 92034**

ALL WORK AND MATERIALS NECESSARY TO CONSTRUCT THE CLEANOUTS 8" PVC STAND PIPE WITH GRATE SHALL BE INCLUDED IN THE UNIT PRICE BID.

8" PVC STAND PIPE WITH GRATE SHALL BE PLACED AT THE CONNECTING POINT BETWEEN THE SOLID DRAIN AND PERFORATED PIPES.

THE WORK SHALL INCLUDE A GRATE COVER AND ALL TEES, WYES, FITTINGS NECESSARY TO CONSTRUCT THE STAND PIPE. THE GRATE SHALL BE NEENAH R-2560A WITH ANCHOR. THE ANCHOR SHALL EXTEND SIX INCHES AND HOOKED TO THE 4" ROCKS SURROUNDING THE STAND PIPE. CONTRACTOR SHALL CONTACT JENE WATERS FROM NEENAH FOUNDRY AT (414) 943-3500 TO OBTAIN THE GRATE COVER.

THE 8" PVC STAND PIPE WITH GRATE SHALL BE PLACED 8' MINIMUM FROM ALL EDGES OF THE VERTICAL LINER AND 4 FEET MINIMUM FROM THE BACK OF THE CURB AND SHALL

INCLUDE 4" ROCKS PLACED AT THE TOP OF THE ENGINEERED SOIL LAYER EXTENDING ONE FOOT RADIUS AROUND THE STAND PIPE AND COVERS UP TO THE BASE OF THE GRATE WHICH IS MOUNTED ON THE TOP OF THE PVC STAND PIPE.

**Q. WOODEN SIGN - BID ITEM NUMBER 92046**

THE CONTRACTOR SHALL INSTALL ONE SIGN AT A LOCATION SPECIFIED BY THE EE ENGINEER. THE CONTRACTOR SHALL CONTACT MR. TIMOTHY THUR AT (414) 286-2463 TO DETERMINE THE EXACT LOCATION OF THE SIGN.

ALL WORK AND MATERIALS NECESSARY TO INSTALL THE SIGN AS DESIGNED SHALL BE INCLUDED IN THE UNIT PRICE BID. THE INSTALLATION SHALL INCLUDE SUPPLYING ALL NECESSARY MATERIALS INCLUDING 2 SIDED SIGN ASSEMBLIES SIMILAR. BOTH SIDES OF THE SIGN TO BE IDENTICAL. SIGNS TO BE INSTALLED WITH 4" X 6" CEDAR TIMBERS AND METALLIC GOLD TEXT AS SHOWN ON PLAN 228-89.

**R. TYPE A LAWN REPLACEMENT - BID ITEM NUMBER 50025**

ALL WORK AND MATERIALS NECESSARY TO REPLACE THE REMOVED LAWN SHALL BE INCLUDED IN THE UNIT PRICE BID.

**S. 3'-0" DIA. STORM INLET W/SUMP- BID ITEM NUMBER 42301**

THIS BID ITEM IS FOR QUANTITY PURPOSES ONLY. THE CONTRACTOR SHALL BE PAID FOR THE NUMBER OF STORM INLETS INSTALLED FOR THIS PROJECT AT THE RESPECTIVE BID PRICE.

21. THE CONTRACTOR IS ENCOURAGED TO SOLICIT BIDS FOR ALL WORK RELATED TO BID ITEM NOS. 92033 AND 95009 FROM THE CITY'S FORESTRY DIVISION. PLEASE CONTACT MR. SCOTT BARAN AT 414-286-3531.
22. THERE WILL BE A PRE-BID MEETING FOR THIS PROJECT AT 10:00 AM, FRIDAY JUNE , 17 2011 THE MEETING WILL BE HELD AT THE FOLLOWING LOCATION:

ROOM 818 - MUNICIPAL BUILDING  
841 NORTH BROADWAY  
MILWAUKEE, WI 53202  
414-286-0514